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THE VOLCANIC ROCKS OF THE DAYLESFORD DISTRICT

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Abstract

A decided contrast exists between the extensive lava fields to the west of Daylesford, and the confined lava fields to the east. They are separated by the Jim Crow Ranges of Ordovician sandstone, those to the east are usually older and more acid, those to the west are younger, more basic, and more widespread. All belong to the Newer Volcanic series and range in age from Pliocene to Pleistocene or later; some of the dykes are probably older than Pliocene.

There is a marked tendency to parallel alignment of points of eruption, the principal direction being that of the Corinella dyke. Certain evidence suggests that there has been some migration of points of eruption from east to west along these lines of weakness.

New evidence is given that the course of the ancestral Jim Crow Creek was much the same as the modern stream, and not under Wombat Hill as popularly held.

Petrology

The nomenclature set up by Edwards (1938) has been followed, with the addition of local varieties. The types met with are:

Lavas

- Trachyandesite
- Trachyphonolite
- Trachyte
- Oligoclase basalt
  1. Normal
  2. Macedonite
- Olivine-anorthoclase-trachybasalt
- Olivine-anorthoclase-basalt
  1. Normal
  2. Llewellyn Lead variety
  3. Kingston variety
- Iddingsite-augite-andesine basalt
  1. Ballan type
  2. Porcupine Ridge type
- Olivine-labradorite-basalt
  - Trentham type
    1. Normal
    2. Titanaugite variety
  - Malmsbury type
    1. Normal
    2. 'Dolerite porphyrite'
  - Footscray type
- Limburgitic basalt
- Limburgite

Dykes

- Monchiquite
- Biotite lamprophyre
- Augite lamprophyre
- Olivine basalt

Ejectmenta	Agglomerate
	Tuff
	Country Rock
Associated Rock	Diatomaceous earth

Adequate descriptions of the petrological characters of the principal types have been given by Edwards (1938), and only the varieties are here described in detail.

Trachyandesite

Black and grey fine-grained trachyandesites occur at Spring Hill, west of Tylden (Edwards, p. 258), but not elsewhere in the area mapped.

Trachyphonolite

Green anorthoclase trachyphonolite (Mahony 1931) occurs on Mount Wilson, south-west of Blue Mountain.

Trachyte

These greenish rocks occur in Allot. 69, Tylden, form Blue Mountain south of Trentham, and Babbington's Hill north of Bullarto. The upper flow at Blue Mountain is a light green-grey rock, and the lower is dark green and finer grained (Mahony 1931). Babbington's Hill is a large lava dome of dark green trachyte.

Oligoclase basalt

Basic olivine oligoclase basalts occur in the lower flows at Trentham Falls and Dier's Falls (Holcombe) in a valley south of Mount Prospect, in the bed of the Tullaroop Creek (Parish of Glengower and Eglinton) and form the western edge of the lava sheet between Dean and Spring Mount, though this area has not been mapped in detail. They are amongst the earliest of the basalt flows. Certain early flows from Mount Franklin to the north must have been oligoclase basalt, as this type is found as large boulders in the deep lead gravels of Yandoit (Steele's Creek) Mine (Whiting 1938).

The Macedonite variety of oligoclase trachybasalt was established by Skeats and Summers (1912). A small patch is exposed on the southern edge of the Bullarto flows in Allot. A 13. Bullarto.

Trachybasalt

Olivine-anorthoclase-trachybasalt occurs in the lowest flow on the south side of Babbington's Hill, and forms the central portion of the Bullarto plateau.

Olivine Anorthoclase Basalt

Considerable difficulty was experienced in distinguishing between 'anorthoclase' and potash obligoclase in the phenocrysts of certain lavas; it is a matter of opinion whether some of the flows mapped as oligoclase basalt would be more correctly termed anorthoclase basalt. Those mapped contain significant numbers of 'anorthoclase' phenocrysts, little corroded nor resorbed, as to warrant classification in the normal type. The major flows came from Mounts Moorookyle and Kooroocheang (Smeaton Hill) and from Mount Franklin. In the crater of this latter breached scoria cone is a plug of basalt in which phenocrysts of 'anorthoclase' up to 3 inches in length have been found, together with masses of dark green olivine and black pyroxenes. Similar minerals are common in the scoria of which the walls of the cone are composed.

Olivine-Labradorite-Anorthoclase Basalt (Llewellyn Lead variety)

This may be regarded as the Trentham type containing significant numbers of anorthoclase phenocrysts. The long flow running from Leonard's Hill to Daylesford (Orr 1927b) belongs to this variety.

Olivine-Labradorite-Anorthoclase Basalt (Kingston variety)

Flows between Kangaroo Hills (Kingston) and Hepburn Lagoon appear to be intermediate between the Malmsbury type of olivine-labradorite-basalt and olivine-anorthoclase-basalt. They have been mapped as Malmsbury type.

Iddingsite-Augite-Andesine Basalt (Ballan type)

Although this type grades into the Malmsbury type (Edwards, p. 277) there is little difficulty in recognizing the extreme Ballan type by its texture in thin sections. It occurs as the latest flow in many of the volcanic hills, notably in the north-west and central portions of the area. The hand specimens are usually fine grained compared with the doleritic Malmsbury type.

Iddingsite-Titanaugite-Andesine Basalt (Porcupine Ridge variety)

This variety of the Ballan type medium occurs as lava flows from Porcupine Ridge and The Bluff (Holcombe). The hand specimens are blue-grey, non-vesicular, with small phenocrysts visible; in thin section the rock consists of common small to medium olivine phenocrysts heavily margined with reddish iddingsite, abundant large to medium crystals of titanaugite, while the ground mass contains smaller pyroxenes, short andesine laths, some glass, and minute dots of iron oxides.

Olivine-Labradorite-Basalt (Trentham type)

The normal Trentham type (Edwards, p. 281) is widespread in the eastern and southern portions of the area; in many places it is clearly overlain by flows of Malmsbury type. It is readily distinguished from the latter by its dark grey colour, with a greenish tinge, and its dense texture. In thin section the absence of iddingsite and the presence of green glass assist in recognition.

Olivine-Labradorite-Titanaugite-Basalt (Trentham type)

This variety occurs in four localities, viz. Allot. 6A, Bullarto; Allot. 29, Korweinguboora; Allot. 11, Section IV, Burke, and Allot. 25, Smeaton, all small areas; and in a distinctive flow from Bull's Hill (Musk) to Coomoora (in the bed of Wallaby Creek). It is a dark blue-grey fine-grained non-vesicular rock, showing small phenocrysts of olivine and pyroxene (up to 1 cm.). The thin sections show large to medium clear olivines, without iddingsite, large phenocrysts of titanaugite with inclusions of iron oxides, large masses of labradorite laths; the ground mass consists of plagioclase felspars, granular greenish-blue pyroxenes, and abundant grains of iron ore, many encrusting the pyroxenes. Small patches of green glass occur.

Olivine-Labradorite-Basalt (Malmsbury type)

The normal doleritic type of light grey Malmsbury basalt (Edwards, p. 281) covers much of the extensive lava field in the west of the area, and the flows were obviously derived from the vents whose upper flows are mapped as Ballan type. There is often only the textural difference to distinguish the two types, and these may be less distinct than was formerly thought.

Olivine-Labradorite-Basalt ('Dolerite Porphyrite')

In the vicinity of Tallent's Hill, Dean, there is a coarse-grained doleritic rock, with abundant white felspar laths about 1 cm. long, set in a purplish groundmass. It was mapped by the Geological Survey (Creswick Goldfield) as dolerite porphyrite, but thin sections show that it is merely a coarse variety of the Malmsbury type.

Olivine-Labradorite-Basalt (Footscray type)

This type, similar in texture but darker in colour than the Malmsbury type, and characterized in thin section by the presence of intersertal brown to black iron-rich glass in the groundmass, is found in flows around Mount Cameron (Eglinton), near Birch's Bald Hill (Springhill), at Clover Hill (Smeaton), and Badger Hill (Dean).

Limburgitic Basalt and Limburgite

Many hand-specimens named in the field as limburgites because of their dark-blue grey nodular appearance proved on microscopic examination to contain small amounts of plagioclase. Wombat Hill and Adami's (Middleton's) Hill immediately north of it are of limburgitic basalt. So also are the residuals on either side of Breakneck Gorge at Hepburn, Snake Hill (Glenlyon), Snowdon Hill (Burke), a flow near Franklinford, and Edwards Hill (W. Moorabool). These lavas are limited in extent to the vicinity of the vents. True limburgite appears only on the summit of Wheeler's Hill (Musk) associated with limburgitic basalt.

Ejected Blocks of Country Rock

In the scoria of many vents, especially in the western half, there are small ejected blocks of the country rock, chiefly sandstone and mudstone, but occasionally granite.

Lady Franklin, the parasitic cone on the western slope of Mount Franklin, has the largest blocks, some up to 3 feet in diameter. These are sandstone, quartzite and quartz pebbles. Kooroocheang or Smeaton Hill has similar blocks in its scoria. At Bowen's Hill, Allots. 1, 2, 3, Smeaton, there are inclusions of granite in the scoria. The nearest granite in situ is 6 miles west of this vent. Quartz pebbles are found in the vesicular lava of the eastern hill at Stony Rises, Allot. 41, Campbelltown.

Dyke Rocks

Several biotite-lamprophyre dykes occur in the Hepburn area. The longest runs east-west from the North Ajax Mine across to the Freehold United Mine, a distance of 1¼ miles. It is clearly marked on Whitelaw's map of the Daylesford Goldfield (Whitelaw and Baragwanath 1922). The width averages 2 feet. On the surface it is very decomposed, but can be recognized by the flakes of brown biotite. Fresh specimens from the dump of the Freehold United show large flakes and 'books' of biotite up to 2 cm. and rarer masses of black hornblende set in a fine-grained light brown groundmass. In thin section the biotite is revealed as corroded phenocrysts, out of equilibrium with the groundmass; there are rarer phenocrysts of pleochroic titaniferous augite, corroded olivines, ovoid patches of hornblende, patches of analcite and secondary calcite and dots of iron ore. The rock is related to the Bendigo monchiquite dykes (Stillwell 1912).

Similar dykes occur at the Frenchman's Mine and in Welshman's Gully, Hepburn, and at Fairy Dell (Tipperary Springs) in the bed of Jim Crow Creek. In these, the biotite crystals are not so numerous. Both dykes appear to have an east-west trend. Numerous smaller dykes, mostly decomposed, are recorded on the

various Geological Survey plans of the area. There is no evidence of their lithological nature, but presumably most were of the monchiquite type.

Certain basaltic dykes are recorded, notably the feeder pipe of Wombat Hill volcano (Whitelaw and Baragwanath 1922, p. 8), the funnel-shaped filled crater of Adami's (Middleton's) Hill (Krausé 1878) and the Corinella dyke at Egansstown (Orr 1927a). These are discussed later under the heading of structural features. Near Christensen's Ajax Mine is a plug of augite lamprophyre, a grey non-vesicular rock of medium texture, showing phenocrysts of augite and felspar. In thin section the rock consists of titanaugite and clear olivines, with subordinate interstitial plagioclase laths and some blebs of iron ore.

Pyroclastic Rocks

Remarkably few outcrops of pyroclastics occur. On the north-west bank of Hepburn Lagoon there are bedded tuffs visible for a thickness of 20 feet; volcanic agglomerate occurs in beds a few feet thick at Bald Hill, 1 mile north-west of the summit, at McRorie's Hill (cf. Gregory 1903, p. 11) and at the western edge of the Corinella Hill on Deep Creek.

Scoria is abundant on most of the volcanic hills, especially in the western half of the area. Krausé (1878, p. 90) states that 'a thick deposit of ash and scoria fills a great part of the depression between Wombat Hill and Fern Hill'. Mr. G. Baker kindly examined a specimen of tuff from the Corinella 'dyke' and found grains of olivine, augite, magnetite, brown glass, ilmenite, iddingsite and altered plagioclase, indicating a basic volcanic rock.

Evidence of Age

All the lavas belong to the Newer Volcanic series of Pliocene to sub-Recent age. Many of the flows overlie 'deep lead' gravels, which contain silicified wood and are closely associated with lignitic clays. Krausé classified all the sub-basaltic gravels as Middle Pliocene (Older Drift) as distinct from the Wallaby Creek (Coomoora) quartz conglomerates which he regarded as Oldest Drift (Lower Pliocene), a remnant of a once extensive capping on the Ordovician. The present river gravels, in part redistributed Older Drift, he classed as Recent Drift (Upper Pliocene).

Whitelaw (1922) classed the sub-basaltic gravels as Older Pliocene, the higher level gravel deposits on creek banks as Newer Pliocene, and the present creek-bed gravels and basalt boulders as Recent.

In view of the range in age of the volcanic rocks over two geological periods, it seems fallacious to regard all the sub-basaltic gravels as of the same age; they must necessarily have a somewhat greater age-range than the basalts, i.e. at least from Lower Pliocene to Holocene. The lignitic deposits of Stony Creek Basin, Coomoora, Werona, etc., have not been satisfactorily classified in regard to age; they may be Pliocene to Pleistocene. The order of extrusion of the various lava types can be more definitely established, and confirms the observation of Edwards (p. 308) that the older flows were acid and the later flows basic.

The general sequence is:

Limburgitic basalt
Ballan
Footscray
Malmsbury
Ol-Anorthoclase-Basalt
Trentham

Trachybasalt
Oligoclase Basalt
Trachyte
Trachy-phonolite

At Wheeler's Hill (Musk) the limburgitic basalt overlies the Ballan type flow of Italian Hill. Ballan-type forms many of the volcanic hills north-east of Clunes, from which earlier Footscray and Malmsbury-type flows emanated. In many places in Burke, Coliban and Trentham, the Malmsbury type overlies the Trentham type. The position of the Olivine-anorthoclase-basalt flows is not certain, but the flow from Leonard's Hill covering the Llewellyn Lead appears to be later than the Trentham-type flow south from Leonard's Hill. At Mount Moorookyle the olivine-anorthoclase-basalt is younger than the Trentham type to the north-west; a similar relation holds for Mount Franklin. The trachybasalt of Bullarto is probably contemporaneous with the Trentham-type basalt, or possibly slightly older. At Dean and Wattle Flat the oligoclase basalt appears to pre-date the Malmsbury and also the Trentham type.

Because of their relatively denuded state, the trachytes of Blue Mountain and Babbinton's Hill, and the trachyphonolite of Mount Wilson, are placed lowest in the order of age.

Little evidence is available as to the age of the dykes, though from their decomposed state most of them, and especially the lamprophyres, would appear older than the lavas. The volcanic plugs are no doubt contemporaneous with the lavas.

The tuffs of the Corinella dyke and of Coomoora are probably contemporaneous with the diatomaceous and lignitic deposits in those areas. The ages of these lacustrine beds have not been precisely assessed; they may be Pliocene or Pleistocene (Harris and Thomas 1948, Cookson 1953).

Types of Volcanic Land Forms

More than half of the 100-odd vents are scoria domes of typical helmet shape, lacking a visible opening and rising some 200 to 500 feet above their surroundings. Typical scoria domes are Wheeler's Hill (Musk), Bullarook Hill, Spring Mount (Creswick), Forest Hill (Kingston), Clarke's Hill (Newlyn) and Mount Moorookyle (Smeaton). Composite volcanoes of alternate lava and scoria are Smeaton Hill (Kooroocheang), Wombat Hill (Daylesford), Menzies' or Stewart's Hill (north of Mount Franklin) and Patten's Hill (west of Malmsbury).

Sill-like ridges on the sides of some of the scoria domes suggest the edges of interbedded lava flows, some with inwards dips in a radial pattern. Similar concentric ridges on some of the lava domes, e.g. Mount Wilson, are probably due to successive flows.

Mount Franklin and Horseshoe Hill are breached cinder cone craters, and Bald Hill west of Hepburn Springs is a breached scoria cone. At Kangaroo Hills (Newlyn) and Eastern Hill (Eganstown) there are paired hills due probably to simultaneous eruptions, as the rocks in each pair are identical. Lady Franklin is a parasitic cone on the west side of Mount Franklin, and there is another on the southern slopes of Kooroocheang (Smeaton Hill).

Lava domes and shields comprise only 15 per cent of known vents. Typical examples are: Elevated Plains, Mount Prospect, Mossop's Hill, Stony Rises (Campbelltown) and Powlett's Hill (Campbelltown).

Hepburn's Lagoon may be the site of an explosion caldera or maar, with the

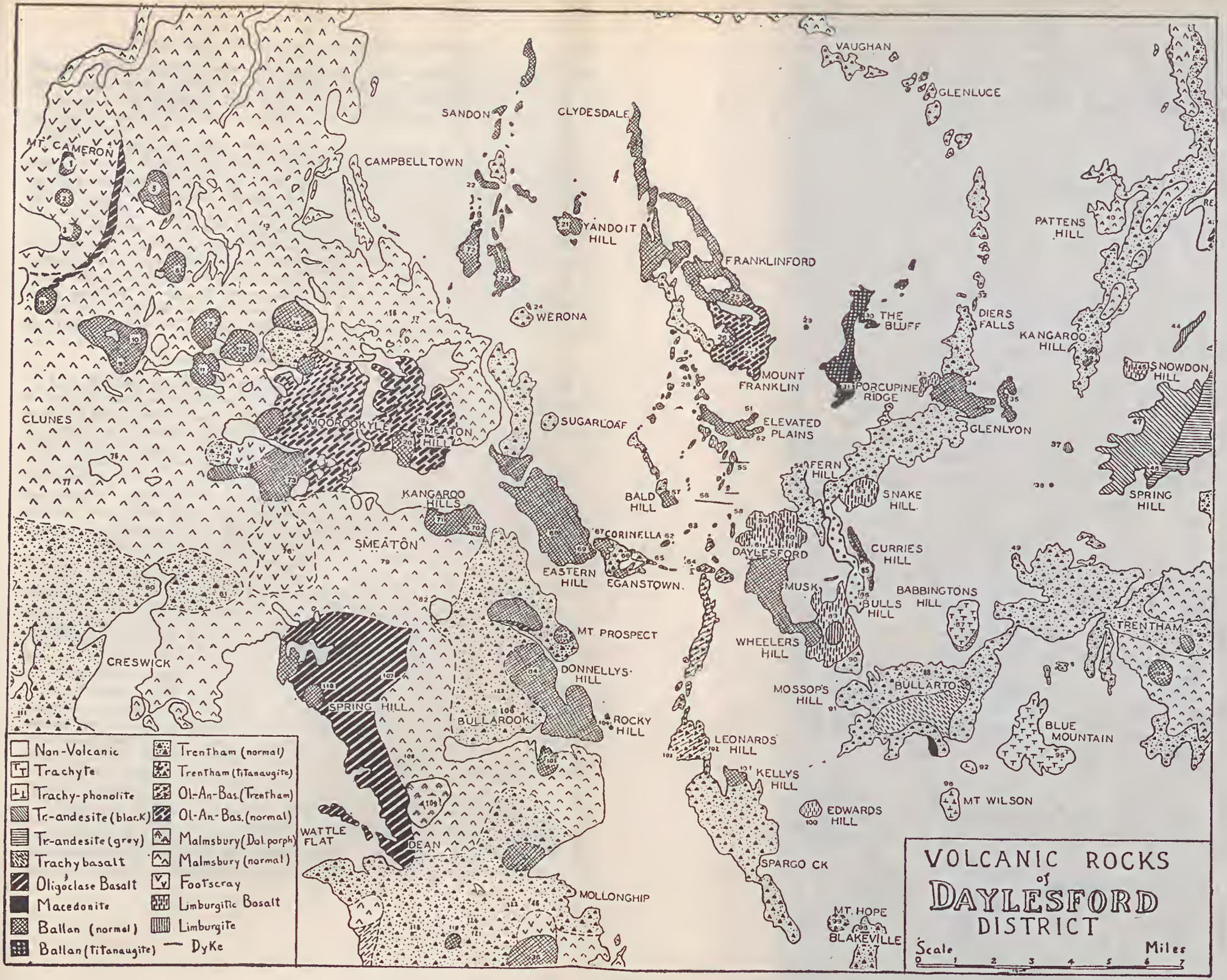

FIG. 2 (See page 124)

Kangaroo Hills marking the northern perimeter, a lower arcuate ridge on the west and south, and beds of tuff exposed on the northern edge of the lake.

Adami's (Middleton's) Hill, half a mile north of Wombat Hill, was proved by mining operations (Krausé 1878) to be a funnel-shaped capping sealing a volcanic pipe.

Volcanic plugs of a few yards diameter are recorded at Christensen's Ajax Mine, Doctor's Gully, a site east of Mount Franklin, and two between Tipperary Springs and Eganstown. They are all now level with the Ordovician country rock. Mining operations revealed volcanic pipes under Wombat Hill (Whitelaw, p. 10); Elevated Plains (Taylor, p. 15), and at Corinella (Taylor, p. 15).

The thickness of the lava flows varies greatly; the average thickness would be 30 to 50 feet, but much greater thicknesses are recorded in *Diamond Drill Reports* (1886-7) and Hunter (1909) and on the Survey maps; e.g. Porcupine Ridge, 190 feet; Bullarook, 200 feet; Glenlyon, 233 feet, etc. Superimposed flows, in some cases separated by clay or gravel, occur in the vicinity of Shepherd's Flat and Franklinford, in the bed of Tullaroop Creek on Fraser's Station (Glengower), at Trentham East, and at many other places, especially in the banks of the creeks.

Structural Pattern of Vents and Dykes

Consideration of the relative positions of the vents reveals a strong tendency to linear arrangement along sets of parallel lines. The dominant line of weakness is that of the Corinella Dyke (Orr 1927a), running approximately west-east (279° M); this line includes, reading from the west, Clover Hill, McRorie's Hill, Woodhouse's Hill, Kangaroo Hills, Eastern Hill, Corinella volcanoes and dykes, Stony Creek Basin, and Wheeler's Hill. This line appears similar to some in Iceland (Thoroddsen 1905), which are in places along their length volcanic, non-volcanic, open, closed, partly closed, or fallen in; the Corinella line has blank intervals between vents which may be due to closing of the fissure in those places; in other places, as at Eganstown and Sailor's Creek, it is occupied by basaltic dykes, deposits of tuff, diatomaceous earth and ligneous clay, apparently in rather narrow vertical attitudes, and in other places by brecciated country rock (Coulson 1950).

Several lines of vents parallel in direction to the Corinella line can be reasonably discerned (Fig. 2); the proximate northern one includes the long dyke of biotite lamprophyre running from the North Ajax Mine to the Freehold United Mine.

Since the principal fold axes of the Ordovician basement run approximately NNW.-SSE. (337°M), the compressive stresses come from due west, so that the lines of weakness described above represent tension gashes, and in some respects their disposition suggests faults 'en echelon' (cf. Niven 1942).

It is natural to seek another set of co-linear vents with directions orthogonal or diagonal to the main west-east lines. Before discussing these, it must be admitted at once that none of these lines are fault-lines or fissures; they are merely lines along which perhaps half a dozen vents are aligned. This gives point to Cotton's remark (1944) that 'the relation of central vents to underlying fissures or fissure swarms (rift zones) in the crust is rarely questioned, but the fissures are in nearly all cases hypothetical'.

Despite the objection that there is absence of evidence of fissuring or faulting among the rocks intersected by the lines joining the vents, there appears to be some significance in the line-up of such major points of eruption as Rocky Hill-Smeaton Hill-Kangaroo Hills-Bullarook Hill-Tipperary Hill-Badger Hill in the 340°M direction, which is approximately the direction of the fold axes of the Ordovician

basement. On a parallel line are Mount Franklin-Elevated Plains-Fern Hill-Wheeler's Hill-Mossop's Hill. The larger vents seem to be at the points of intersection of these lines with those parallel to the Corinella line.

Gregory (1903) suggested arcuate lines connecting some of the western volcanoes, viz. McDonald's Hill-Clover Hill-McRorie's Hill-Birch's Bald Hill-Spring Hill, but these are not paralleled elsewhere.

Likewise the directions of two proved faults (351°M) to the north, viz. Muckleford Fault (Thomas 1935) and Campbelltown Fault (Harris and Thomas 1948), do not coincide with any notable number of vents.

As will be seen from Fig. 1, the eastern part of the area produced trachytes and trachyphonolite and shows considerable denudation; the western vents are more basic types such as labradorite basalts and limburgitic basalts. This may be due to progressive opening from east to west along fissures, a possibility envisaged by Cotton (1944, p. 219) for certain lines in the East Indies.

Palaeogeography

The pre-basaltic terrain was probably much smoother than the present volcano-dotted surface; the Divide was probably a little south of the present watershed; the courses of the known streams were those shown as deep leads on Hunter's map (1909). One of these, the Llewellyn Lead, is of particular interest. Starting at Leonard's Hill, and flowing north, it is covered by a flow of olivine-anorthoclase basalt (Orr 1927a) and flanked by the lateral streams, Sailor's Creek and Stony Creek, which unite at Table Hill to become Jim Crow Creek. But the massive basalt flow apparently ceases at Table Hill, and much conjecture has been made as to the course of the Llewellyn Lead beyond there, though little of this has appeared in print. By examining the patches of residual basalt along the banks of Jim Crow Creek between Tipperary Spring and Hepburn, it has been possible to identify all of these as the same olivine anorthoclase basalt as that covering the lead to the south. It is with some confidence then that it is asserted that the course of the ancestral stream was much the same as the present Jim Crow Creek; it did not go under Wombat Hill as many old miners believed.

At Coomoora a considerable thickness of ash, scoria and lignite is under the basalt; this idicates the existence of a lake or swamp in pre-basaltic times, but its extent is uncertain. Similar depressions were at Werona (Harris and Thomas 1948), near Creswick (Gregory 1903), Stony Creek Basin (Coulson 1950) and Eganstown (Taylor 1894). The significance of these has been discussed by Harris and Thomas (loc. cit.).

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Key to Numbered Points of Eruption, Fig. 2

Code: S.C., Scoria Cone; B.S.C., Breached Scoria Cone; S.D., Scoria Dome; L.D., Lava Dome; L.C., Lava Cone; P., Plug; D., Dyke.

Serial No.	Map Ref. No.	Type	Local Name
1.	B.1.	S.D.	Mount Cameron
2.	B.1.	S.D.	Middle Hill
3.	B.2.	S.D.	Little Green Hill
4.	C.1.	S.D.	Allot. 4, Sect. 2A, Eglinton
5.	D.1.	B.S.C.	Horseshoe Hill
6.	D.2.		Allot. 4d, Glengower
7.	D.3.		Kelly's Hill, Glengower
8.	B.3.	S.D.	McKinnon's Hill
9.	C.4.		William's Hill
10.	C.3.	B.S.C.	McDonald's Hill
11.	D.4.		Leishman's Hill
12.	E.3.	S.D.	Stewart's (Bowen's) Hill
13.	E.2.	L.C.	Allot. 18, Turkey Hill, Campbelltown
14.	E.3.	L.D.	Allot. 34, Campbelltown
15.	F.2.	L.D.	Allot. 13c, Campbelltown
16.	F.3.	L.C.	Stony Rises (Anderson's)
17.	G.3.	L.C.	Rocky Hill (Anderson's)
18.	F.4.	S.D.	Mount Moorookyle
19.	G.4.	B.S.C.	Smeaton Hill (Kooroocheang)
20.	G.4.	L.D.	Parasitic Cone, Smeaton Hill
21.	H.1.	S.D.	Yandoit Hill
22.	J.2.	L.D.	Allot. 62b, Campbelltown
23.	H.2.	L.D.	Allot. 9, Campbelltown
24.	H.3.	L.C.	Werona Hill

Serial No.	Map Ref. No.	Type	Local Name
25.	L.3.	S.D.	Menzies' Hill (Stewart's)
26.	L.3.	S.D.	Lady Franklin
27.	L.3.	B.S.C.	Mount Franklin
28.	K.4.	L.D.	Caledonian Hill
29.	M.3.	P.	Allot. 2b, Sect. A, Holcombe
30.	N.3.	L.C.	The Bluff
31.	N.4.	L.D.	Porcupine Ridge (Holcombe)
32.	O.3.		Sect. A, Pre-emptive Purchase, Holcombe
33.	O.4.		Allot. 30f, Glenlyon
34.	P.4.	L.C.	Kidd's Hill
35.	P.4.	L.C.	Lowe's Hill
36.	H.11.	L.D.	Badger Hill
37.	Q.5.	L.D.	Sugarloaf Hill, Coliban
38.	P.5.		Allot. 55a, Coliban
39.	Q.3.	L.D.	Kangaroo Hill, Burke
40.	Q.1.	L.D.	Patten's Hill
41.	R.1.		Allot. 263, Edgecumbe
42.	R.2.	L.D.	Yarra Bend, Lauriston
43.	R.2.	L.D.	Lauriston
44.	R.2.	L.D.	Allot. 2, Sect. 6, Burke
45.	R.3.	L.D.	Snowdon Hill
46.	H.11.	S.D.	Mollonghip Hill
47.	R.4.		Allot. 18a, Burke
48.	R.5.	L.C.	Spring Hill, Coliban
49.	P.6.	L.D.	Muses' Hill
50.	N.5.	S.D.	Widdicombe's Hill (Kangaroo Hill)
51.	L.4.	L.C.	Elevated Plains (Manning's)
52.	L.4.	L.C.	Elevated Plains south
53.	N.5.	S.D.	Snake Hill
54.	M.5.	S.D.	Fern Hill, Coomoora
55.	L.5.	D.	Hepburn Lamprophyre Dyke
56.	L.5.	D.	North Ajax Lamprophyre Dyke
57.	K.5.	B.S.D.	Bald Hill, Hepburn
58.	L.5.	P.	Doctor's Gully, Daylesford
59.	M.6.	L.D.	Adami's (Middleton's) Hill
60.	M.6.	L.D.	Allot. 15, Sect. 4, ? Wombat
61.	L.6.	S.D.	Wombat Hill, Daylesford
62.	L.6.	P.	Boatswain's Gully, Daylesford
63.	K.6.	P.	Christensen's Ajax Plug
64.	L.6.	D.	Sailor's Creek Dykes
65.	K.6.	D.	Corinella Dyke
66.	K.6.	L.D.	Corinella Hill east
67.	J.6.	S.D.	Corinella (Burnt Hill)
68.	J.6.	S.D.	Eastern Hill west
69.	J.6.	S.D.	Eastern Hill east
70.	G.5.	S.D.	Kangaroo Hill east, Kingston
71.	G.5.	S.D.	Kangaroo Hill west, Kingston
72.	H.2.	S.D.	Allot. 51, Campbelltown
73.	E.5.	S.D.	Woodhouse's Hill
74.	E.5.	S.D.	McRorie's Hill
75.	D.5.	L.D.	Clover Hill
76.	C.5.	L.D.	Toural Pre-emptive Purchase
77.	B.5.	L.C.	Two-Mile Hill (Tourello)
78.	E.6.	S.D.	Birch's Bald Hill (Lord Harry Hill)
79.	F.6.	L.D.	Green Hill, Smeaton
80.	C.7.	S.D.	Cattle Station Hill
81.	D.7.		Green Hill, Allendale
82.	G.7.	S.C.	Hepburn's Lagoon
83.	J.7.	S.D.	Mount Prospect
84.	J.8.	S.D.	Donnelly's Hill
85.	N.6.	L.D.	Currie's Hill